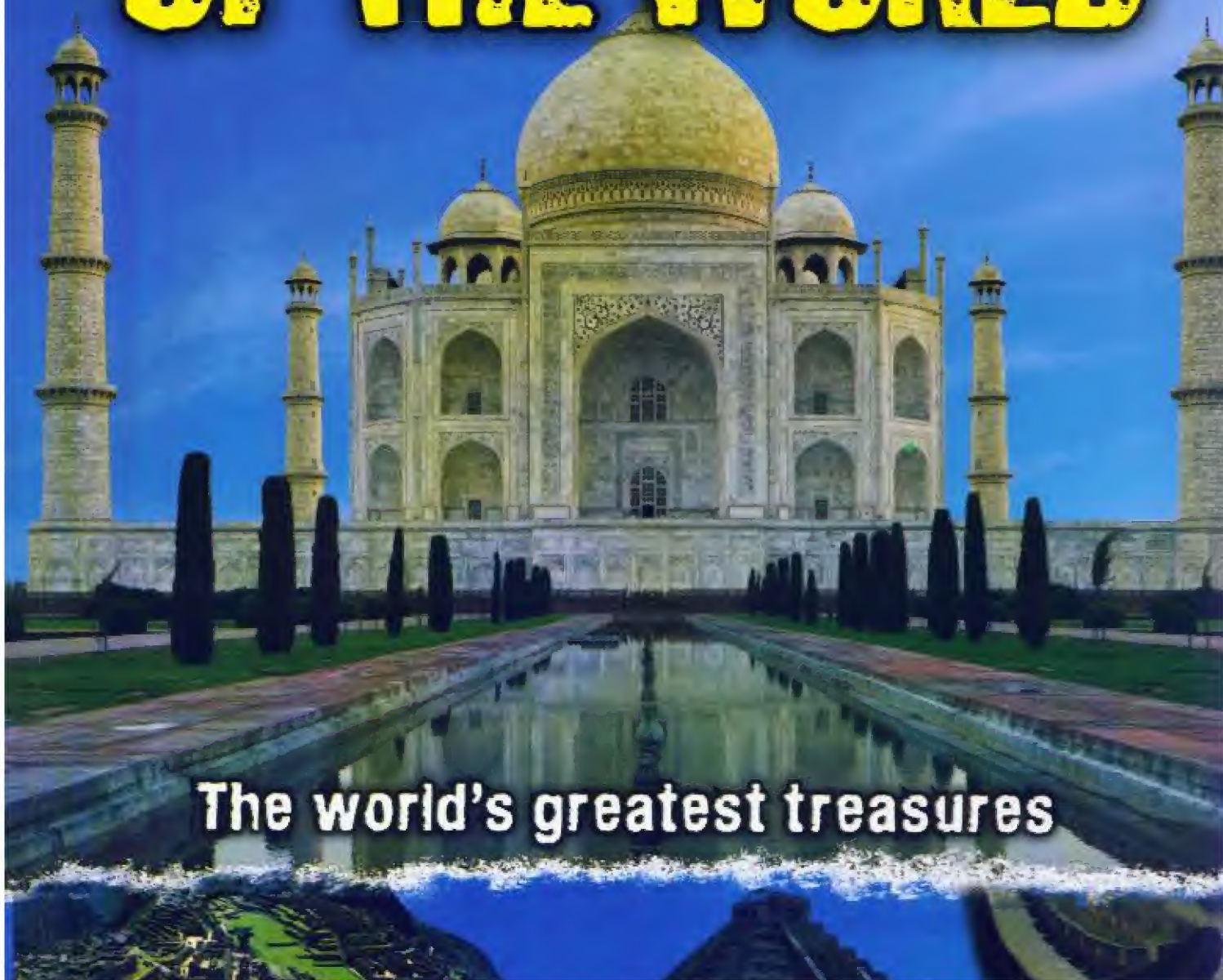




Brainworks
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SEVEN WONDERS OF THE WORLD



The world's greatest treasures

THE SEVEN WONDERS OF THE WORLD

ANJALI KAMATH





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Published in India by Popular Prakashan Pvt. Ltd.; 301, Mahalaxmi Chambers, 22, Bhulabhai Desai Road, Mumbai – 400026, India for Brainworks Learning Systems Pvt. Ltd.
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10 9 8 7 6 5 4 3 2 1

ISBN: 978-81-7991-508-0

Printed in India by GH Printers Pvt. Ltd., A-256, Okhla Indl. Area, Phase-I, New Delhi-110 020.

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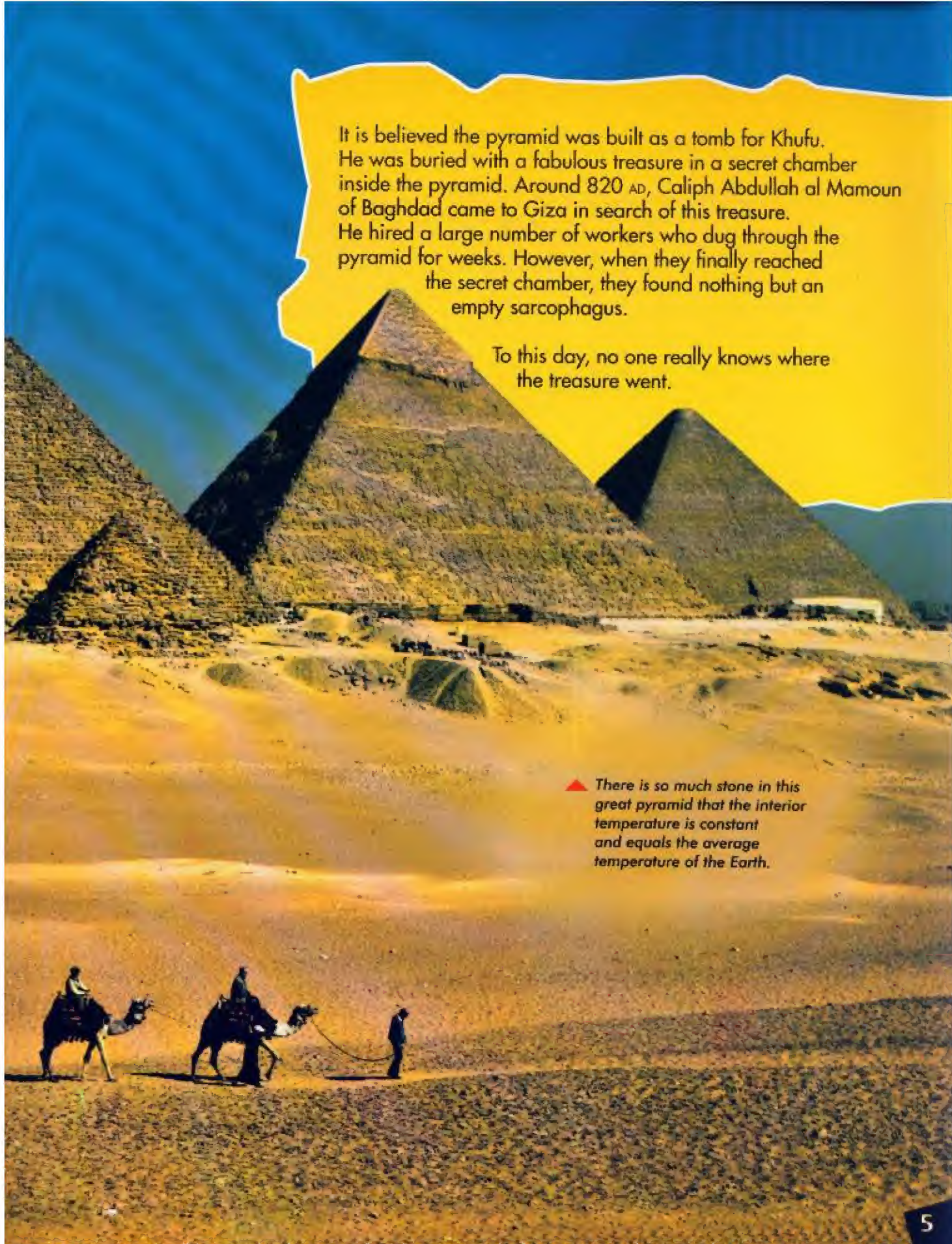


SEVEN ANCIENT WONDERS

The list of the Seven Wonders of the World was first made by the ancient Greek historian, Herodotus in the 5th century BC. Many other similar lists followed and their contents varied. The list that is most commonly referred to today was made by Antipater of Sidon in the 2nd century BC. He listed the most impressive structures of his time in a poem about the temple of Artemis.

The Great Pyramid of Giza

Of all the wonders of the ancient world, the Great **Pyramid** of Giza in Egypt is by far the most well known. It is one of the oldest wonders and the only one to have survived the ravages of time. The Great Pyramid was built by the fourth dynasty Egyptian pharaoh, Khufu between 2650 BC and 2500 BC. The pyramid is made of 2.3 million blocks of stone, each weighing about 2.5 tonnes. According to Herodotus, it took 100,000 men about 20 years to build the massive structure. Until the 19th century, it was the tallest structure in the world.



It is believed the pyramid was built as a tomb for Khufu. He was buried with a fabulous treasure in a secret chamber inside the pyramid. Around 820 AD, Caliph Abdullah al Mamoun of Baghdad came to Giza in search of this treasure. He hired a large number of workers who dug through the pyramid for weeks. However, when they finally reached the secret chamber, they found nothing but an empty sarcophagus.

To this day, no one really knows where the treasure went.


▲ There is so much stone in this great pyramid that the interior temperature is constant and equals the average temperature of the Earth.

Hanging Gardens of Babylon

There are two accounts for the creation of the Hanging Gardens of Babylon near present-day Al Hillah in Iraq. The more popular belief is that King Nebuchadnezzar II built the gardens to comfort his wife, Amyitis. She used to miss the mountain greenery of her homeland very much. Nebuchadnezzar created the fantastic gardens around 600 BC in the middle of the desert. The other possible creator is Queen Samsurmat who lived two centuries before Nebuchadnezzar.

Whoever created the gardens, there are almost no known remains of the Hanging Gardens. In fact, Babylonian writings make no mention of the gardens. They are only mentioned by ancient Greek historians and poets.

The famed gardens were most probably destroyed by an earthquake in the 1st century AD.



◀ The ruins of the Hanging Gardens lie in the long-since-gone ancient city of Babylon, which is near the modern city of Baghdad in Iraq.



Statue of Zeus

"If Zeus moved to stand up, he would unroof the temple."

So said the Greek historian Strabo. He was talking about the 40-foot tall statue of Zeus that had been installed in the temple at Olympia. The temple, dedicated to Zeus, had been designed in 450 BC by the Greek architect, Libon. Although the temple was a wonder in itself, the Greeks felt it needed more.

The Greek sculptor, Phidias, perhaps the finest sculptor in the ancient world, was asked to make the statue. The statue was created over a period of eight years and was completed in 430 BC. It was made of ivory and gold molded over a wooden framework. It showed Zeus sitting on a throne with a symbol of Nike (victory) in his right hand and a scepter crowned by a massive eagle in the left hand.

The temple flourished until the 4th century AD. Fires, floods and earthquakes eventually destroyed the temple around 426 AD.

▲ The Statue of Zeus was the fourth oldest Wonder of the World. It was built in Olympia by the famous sculptor Pheidias to adorn the Sanctuary of Zeus, where the Olympic games were held each year.

Temple of Artemis

The temple of Artemis was built in Ephesus (modern day Selcuk, Turkey) in the year 550 BC. It was dedicated to Artemis, the Greek goddess. Croesus, the King of ancient Lydia sponsored this temple. The temple was made entirely of marble. It contained a statue of Artemis, shown standing with her arms outstretched. The statue was made with such precious materials as gold, silver and ebony.

The original temple was burned down in 356 BC by a madman named Herostratus. It was rebuilt by **Alexander the Great** but destroyed by the Goths in 262 AD. The temple was rebuilt but destroyed again by the Christians, never to be restored again.

*On the same night
when the original
temple was burned
down to ruins,
Alexander the Great
was born.*





Mausoleum of Halicarnassus

The Mausoleum of Halicarnassus was the tomb of Mausolus, King of Caria, a kingdom in the Persian Empire. Mausolus was married to his sister, Artemisia, something that was very common for royalty in that era. In 353 BC, when Mausolus died, Artemisia decided to build him the most magnificent tomb. She sent a word to Greece that she would pay any price to have the best architects work on the tomb. Eventually, four of the best architects of the time, Scopas, Bryaxis, Leochartes and Timotheus worked on this structure.

The tomb was built on a 60-foot high stepped podium. The roof was held up by 36 marbled columns. The roof itself was a 24-step pyramid. On top of the pyramid was a four-horse marble chariot that had statues of Mausolus and Artemisia standing side by side on it.

The whole structure stood over 140 feet tall with the chariot alone standing 20 feet high. The building and the stairway at the entrance was guarded by massive stone lions.

The mausoleum was partially destroyed by an earthquake in the 13th century and by 1522, the crusaders had completely taken apart of whatever remained.

◀ The mausoleum was worked on by four architects all of whom were Greeks.

Colossus of Rhodes

Historians think that it took about 12 years to build the Colossus, a 110-foot high statue of the Sun God Helios.

When Alexander the Great died in 323 BC, fighting broke out between his generals. During the fighting, island of Rhodes had sided with Ptolemy of Egypt. This angered Antigonus, one of Alexander's generals. In 305 BC he had his son Demetrius Poliorcetes, to invade Rhodes with an army of 40,000; however, the city was well defended. In 304 BC a relief force of ships sent by Ptolemy arrived, and Demetrius's army abandoned the siege, leaving most of their siege equipment. To celebrate their victory, the Rhodians sold the equipment left behind and decided to use the money to build a colossal statue of their patron god, Helios.

Construction was left to the direction of Chares, a native of Lindos in Rhodes. Chares started out and the result was a giant iron and bronze statue that stood on a 50-foot high pedestal. Inside were stone columns that held the statue upright.

The statue stood proudly at the entrance to Rhodes harbour for 56 years till an earthquake shattered it to pieces.

This Ancient Wonder inspired French sculptor, Auguste Bartholdi, to make his famous work, the Statue of Liberty.



The Pharos of Alexandria

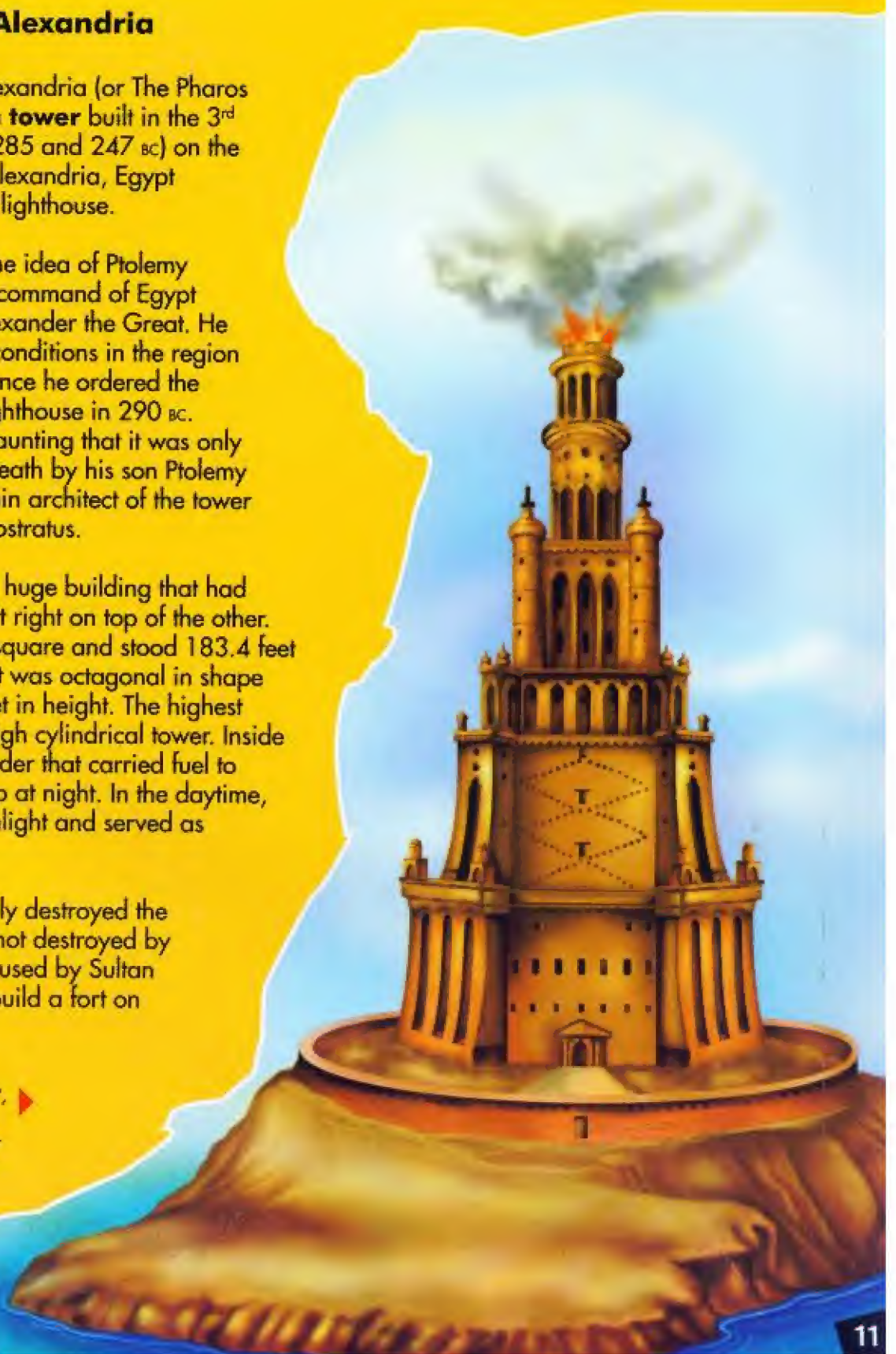
The Lighthouse of Alexandria (or The Pharos of Alexandria) was a **tower** built in the 3rd century BC (between 285 and 247 BC) on the island of Pharos in Alexandria, Egypt to serve as the port's lighthouse.

The lighthouse was the idea of Ptolemy Soter who took over command of Egypt after the death of Alexander the Great. He realised that sailing conditions in the region were dangerous. Hence he ordered the construction of the lighthouse in 290 BC. The project was so daunting that it was only completed after his death by his son Ptolemy Philadelphus. The main architect of the tower was a man named Sostratus.

The lighthouse was a huge building that had three parts, each built right on top of the other. The lowest part was square and stood 183.4 feet high. The middle part was octagonal in shape and measured 90 feet in height. The highest part was a 24-foot high cylindrical tower. Inside the tower was a cylinder that carried fuel to light the fire at the top at night. In the daytime, a mirror reflected sunlight and served as the beacon.

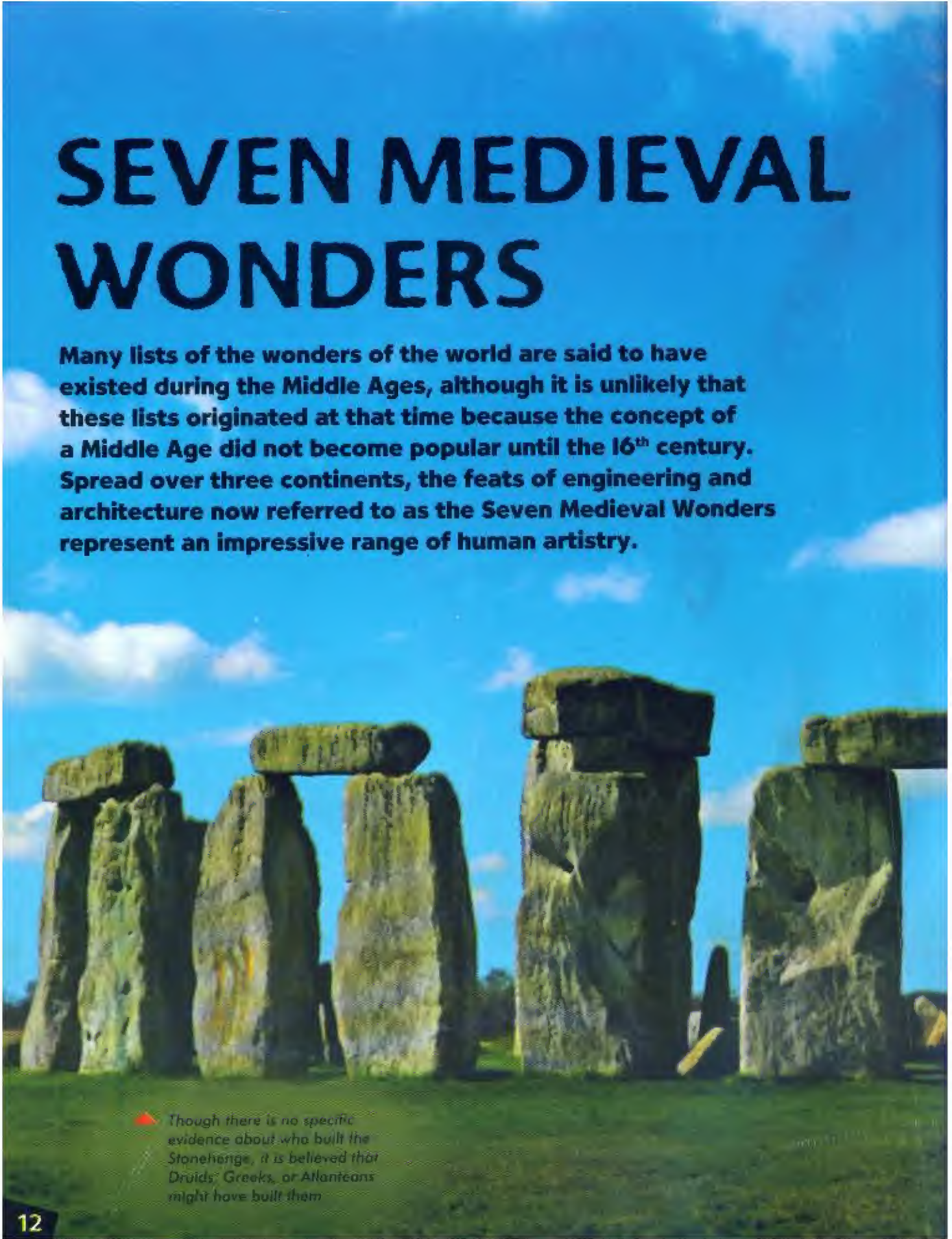
Earthquakes eventually destroyed the structure. What was not destroyed by the earthquakes was used by Sultan Qaitbay in 1480 to build a fort on the same spot.

The "Pharos of Alexandria", was the first lighthouse in the world. It lasted for over 1500 years in the harbour of Alexandria.



SEVEN MEDIEVAL WONDERS

Many lists of the wonders of the world are said to have existed during the Middle Ages, although it is unlikely that these lists originated at that time because the concept of a Middle Age did not become popular until the 16th century. Spread over three continents, the feats of engineering and architecture now referred to as the Seven Medieval Wonders represent an impressive range of human artistry.



Though there is no specific evidence about who built the Stonehenge, it is believed that Druids, Greeks, or Atlanteans might have built them.

Stonehenge

Stonehenge, in Wiltshire, England is probably the oldest and most mysterious of the medieval seven wonders. No one knows exactly why this circle of massive stones was erected. The huge structure is believed to have been developed in three phases, starting 3100 BC. Huge stones weighing tonnes were brought to the place and arranged in circles.

Historians say that the stones were probably brought from faraway places. Yet, how such massive stones could have been transported over any distance, remains a mystery.

Many legends have been associated with this mysterious circle of stones. One of them is associated with **Merlin**, the wizard from King Arthur's stories. In the 5th century BC, hundreds of British noblemen were killed by Hengest, a cruel Saxon leader. King Aurelianus Ambrosius wanted to build a memorial for the dead men. Merlin magically transported the stones from Ireland to Britain, where they rest around the martyrs' graves.



Colosseum

Gladiatorial games were one of the most popular pastimes in ancient Rome. The popularity of the games inspired Roman Emperor Vespasian to build a grand amphitheatre, known as the Colosseum. Construction started sometime between 70 and 72 AD and was completed sometime in 80 AD. The open air theatre could seat 50,000 people and was known officially as the Flavian Amphitheatre. The oval shaped theatre had four floors. The arena was made of wood and covered with sand. There were changing rooms and animal pens below the floor.

The colosseum remained in use for nearly 500 years. The last recorded games being held as late as the 6th century, well after the demise of the Roman empire. Over the centuries the Colosseum was damaged by earthquakes and stripped for building materials.

The Roman Coliseum remained in use for nearly 500 years. The last recorded games were held in it in the 6th century.



It was only in 1900 that Kom el Shoqafa was rediscovered after centuries - by a donkey that fell through a hole in the ground and into its access well.

Catacombs of Kom el Shoqafa

The catacombs of Kom el Shoqafa are a 2000-year old underground burial site carved out of rock. They are located in Alexandria, the capital city of ancient Egypt. The catacombs were created in the early 2nd century AD for a wealthy Egyptian family who practised ancient Egyptian religion. Later, the place became a mass burial site.

A circular staircase leads below the ground to a rotunda. To the left of the rotunda was a funeral banquet hall where friends and relatives of the dead held feasts in the person's memory. The catacombs were decorated with a mix of Grecian, Roman and Egyptian artworks. The tomb chamber was decorated with sculptures of the Egyptian gods Horus, Thoth and Anubis.



Great Wall of China

The Great Wall of China is a series of walls, signal towers and passes in Northern China. It was built, rebuilt and expanded by different Chinese dynasties, including the Qin, Han and Ming. Known as the world's largest man-made structure, the Great Wall of China spans mountains and deserts. It took over 2,000 years to construct the wall.

The Wall was originally constructed in the 5th century to protect the Chinese Empire's northern border from nomadic tribes and other invaders. It was also used to house soldiers and supplies. Millions of people, many of them forced labourers, worked on the Great Wall over the centuries. Countless workers lost their lives in the process and their remains were buried in the wall.

Earlier, the wall was known as 'Ten Thousand Li Wall', referring to the wall's length.

Hagia Sofia

The Hagia Sofia in Istanbul, Turkey is considered one of the world's most beautiful buildings and the finest example of Byzantine architecture. The original cathedral was built by the Roman emperor Constantius, son of Constantine I who founded the city of Istanbul, then called Constantinople. This first church was destroyed by a rioting mob in 404 AD. Emperor Theodosius II then rebuilt the cathedral, but it was burned down during the Nika revolt of 532 AD. The present building was built between 532-537 AD by the emperor Justinian.

The cathedral's most outstanding feature is its dome. Forty windows formed the base of the dome giving the impression that it floats in air. It was the largest cathedral in the world for nearly a thousand years. In 1204, the Hagia Sofia was plundered by the Crusaders; however, it continued to serve as a church until 1453, when Constantinople fell to the Ottoman Turks.

Sultan Mehmet then converted Hagia Sofia into a mosque. The building served as a mosque until 1935. Later, the first Turkish President transformed the building into a museum.

The Church of Holy Wisdom is known as 'Hagia Sophia' in Greek, 'Saint Sophia' in Latin and 'Ayasofya' or 'Aya Sofya' in Turkish.

Leaning Tower of Pisa, Italy

The biggest truth about the Leaning Tower of Pisa is that it was not meant to lean. It was designed by the architect as a freestanding bell tower that would stand vertical. The tower however, began leaning to the southeast soon after the construction began in 1173. This was because of a poorly laid foundation and loose soil that allowed the foundation to shift direction. However, it is this trademark tilt that has earned the tower a place among the seven wonders of the world.

The freestanding bell tower is eight storeys tall. It's believed the tower was developed in three phases spanning almost 200 years. This was a result of the structure's foundation settling unevenly in the soft ground, as well as political issues and financial problems. Over the centuries, the tower has required continuous maintenance to counter the effects of aging, weather and shifting soil. The Italian government closed the tower to the public in 1990 and launched an 11-year, multi-million-dollar restoration campaign. The challenge was to make the tower structurally sound while preserving its famous appearance. The campaign was deemed a success and the Leaning Tower reopened to the public in 2001.

There are seven bells located in the Tower, they are all tuned to musical scales.



Porcelain Tower of Nanjing, China

The Porcelain Tower of Nanjing was also known as the Porcelain Pagoda of the Grand Bao'en Temple. It was designed by the Chinese Emperor Yongle and construction started in the 15th century. From an octagonal base about 97 feet in diameter, the tower's nine storeys rose pyramidally to a height of about 260 feet.

One of the striking features of this structure was the brilliant white porcelain bricks that faced the tower. When the sunlight hit the bricks in the daytime it made the tower glitter. By night the tower glowed in the reflected light of over 140 lamps hanging around the exterior of the tower. The porcelain tiles had images of dragons, animals, landscapes, flowers, and bamboo.

Tragedy, however, struck the pagoda twice. In 1801 a bolt of lightning struck and knocked off the top three storeys of the tower. Then the Taiping Rebellion reached the city of Nanjing and in the resulting warfare, the pagoda was virtually destroyed.



▲ In 1801, a powerful bolt of lightning hit The Porcelain Tower of Nanjing and destroyed its top three storeys. However, they were soon restored.

SEVEN MODERN WONDERS

The dawn of the 20th century brought with it several advances in technology. These advances further spurred on developments in design, engineering, and construction. As a result, modern man has been able to build an array of monumental structures.

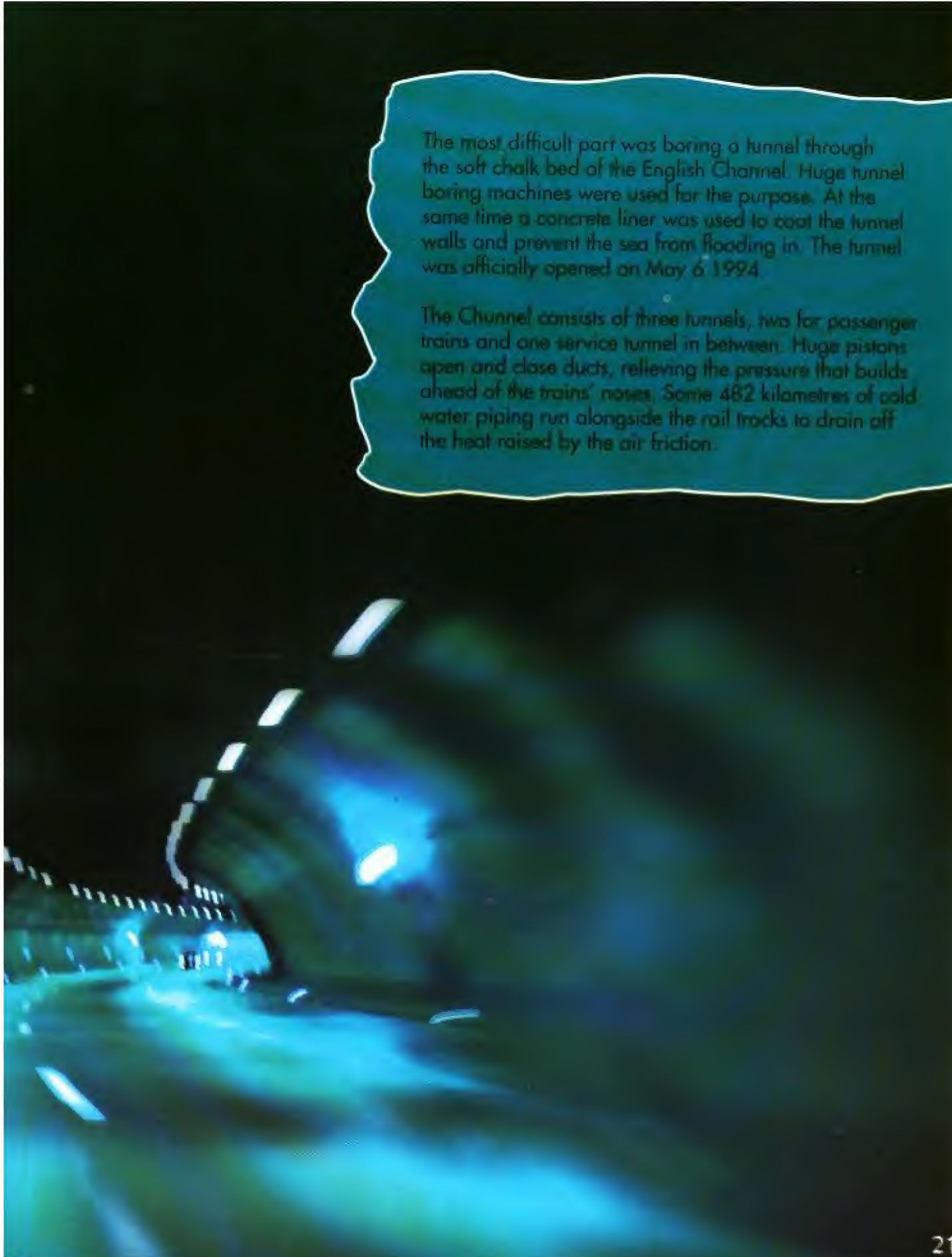
The American Society of Civil Engineers (ASCE), elected seven of these outstanding feats of engineering and created a list of the Seven Wonders of the Modern World. The list contains the greatest civil engineering achievements of the 20th century.

Channel Tunnel

In 1984, the governments of France and England called for proposals to build a railway link between the two countries. It was not the first time that the idea had been proposed, but this time the idea would come to fruition in the form of the Channel Tunnel.

The Channel Tunnel, also known by the nickname Chunnel, is a 50.5-kilometre undersea rail tunnel linking Folkestone, Kent in England with Coquelles near Calais in northern France. The tunnel runs beneath the English Channel at the Strait of Dover. Construction of the tunnel began in 1988 and it took 15,000 workers over seven years to complete the tunnel.

Over 170 million man hours were spent in building the tunnel which was completed in 1994



The most difficult part was boring a tunnel through the soft chalk bed of the English Channel. Huge tunnel boring machines were used for the purpose. At the same time a concrete liner was used to coat the tunnel walls and prevent the sea from flooding in. The tunnel was officially opened on May 6 1994.

The Chunnel consists of three tunnels, two for passenger trains and one service tunnel in between. Huge pistons open and close ducts, relieving the pressure that builds ahead of the trains' noses. Some 482 kilometres of cold water piping run alongside the rail tracks to drain off the heat raised by the air friction.

CN Tower

It all started with bad TV signals. In the 1960s the tall skyscrapers of Toronto, Canada interfered with the transmission. It was then that the Canadian National Railway Company proposed a transmission tower that would be taller than the skyscrapers. The result was the world's tallest freestanding structure—the CN tower.

The tower soars 1,815-feet above the sidewalks of Toronto, three times the height of its better-known cousin, the Seattle Space Needle. The CN Tower weighs as much as 23,214 large elephants. The tower was erected at an amazing rate of 18-feet per day. As the tower rose up rapidly, aircraft-type bombsights kept the tower straight.

The tower has a SkyPod, the world's highest man-made observation deck at 1,467 feet. Another outstanding feature of the tower is the 360 Restaurant that rotates every 72 minutes to give a complete view of the city below.

◀ The 360 Restaurant makes a complete rotation every 72 minutes giving diners a changing view of Toronto more than 1,000 feet below.



Empire State building

The Empire State Building is the best known skyscraper in the world. Measuring 1,250-feet high, the Empire State Building ranked as the tallest building in the world for more than 40 years.

The building's most astonishing feat however, was the speed in which it rose into the New York City skyline. The construction was completed in only a year and 45 days.

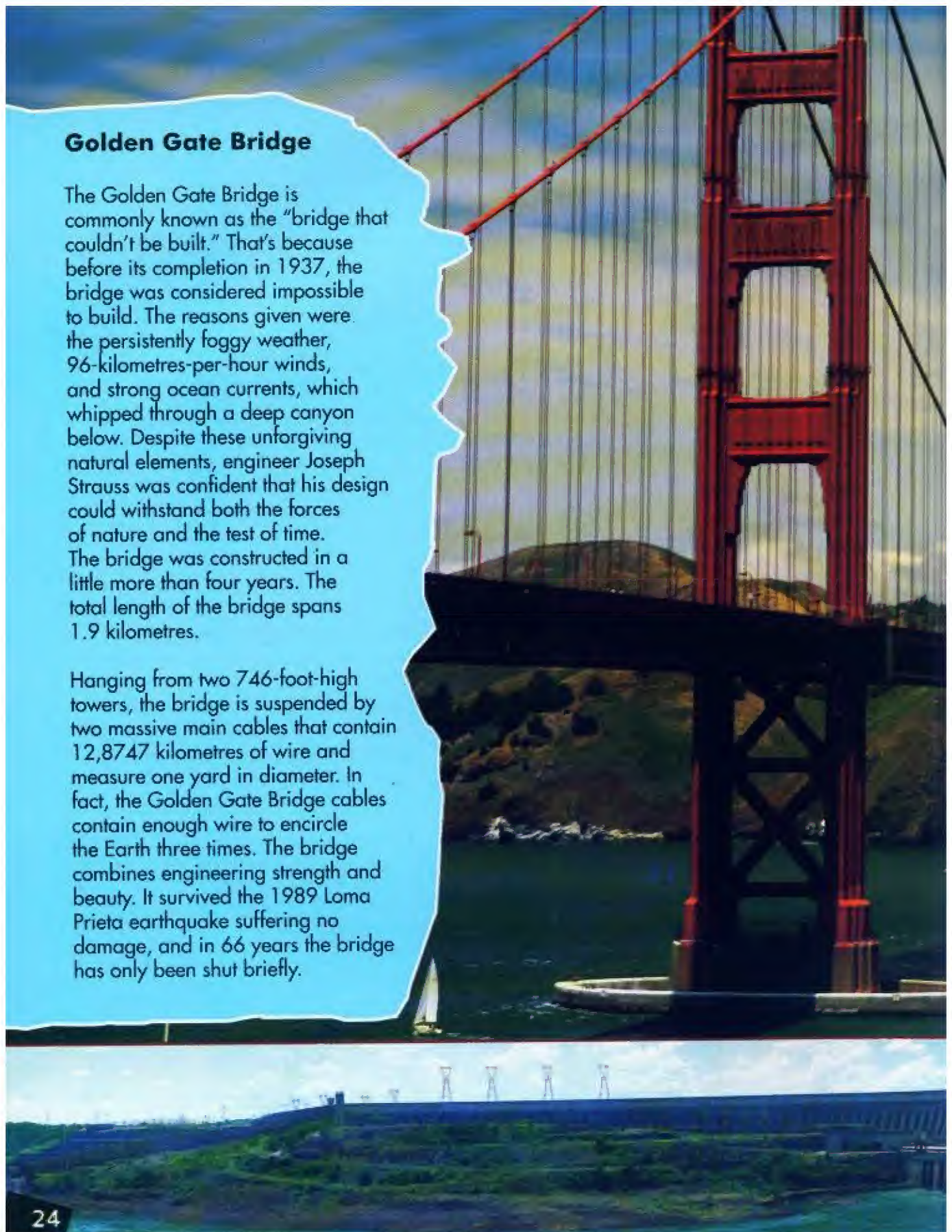
The building was so well engineered that it was easily repaired in 1945 after a B-25 twin-engine bomber plane crashed into it in the dense fog. The project revolutionised the tall building construction industry. Even though other buildings have taken the mantle of the tallest building of the world, the Empire State Building remains the standard against which all other skyscrapers have been judged for the last 65 years.


▶ The Empire State Run-Up has been an annual tradition since 1978. Every year runners race up the 1,576 stairs to the 86th floor. The record time of 9 minutes and 13 seconds was set in 2003.

Golden Gate Bridge

The Golden Gate Bridge is commonly known as the "bridge that couldn't be built." That's because before its completion in 1937, the bridge was considered impossible to build. The reasons given were the persistently foggy weather, 96-kilometres-per-hour winds, and strong ocean currents, which whipped through a deep canyon below. Despite these unforgiving natural elements, engineer Joseph Strauss was confident that his design could withstand both the forces of nature and the test of time. The bridge was constructed in a little more than four years. The total length of the bridge spans 1.9 kilometres.

Hanging from two 746-foot-high towers, the bridge is suspended by two massive main cables that contain 12,8747 kilometres of wire and measure one yard in diameter. In fact, the Golden Gate Bridge cables contain enough wire to encircle the Earth three times. The bridge combines engineering strength and beauty. It survived the 1989 Loma Prieta earthquake suffering no damage, and in 66 years the bridge has only been shut briefly.





On an average, about 40 million vehicles cross the bridge every year, including both north and southbound crossing.

Itaipu Dam

The biggest challenge that faced the engineers of the Itaipu **dam** was changing the course of the world's seventh largest river. The workers spent three years digging a diversion channel for Brazil's Parana river. They removed nearly 50 million tonnes of mud and created a 2 kilometre long channel. Finally they were able to start work on the dam.

The Itaipu Dam spans the Parana River at the Brazil/Paraguay border. The dam is eight kilometres wide and a total of 12.8 million cubic metres of concrete was used to create the dam; that's enough concrete to make five Hoover dams, one of the largest dams in the United States. The main dam, as high as a 65-storey building, is composed of hollow concrete segments; while the flanking wings are earth and rock fill. Itaipu supplies 28 percent of all the electric energy in Brazil's south, southeast and central-west regions, and 72 percent of Paraguay's total energy consumption.

The dam's name was taken from an island "Itaipu" that existed near the construction site. It is a word from the Guarani language meaning "the sound of a stone".





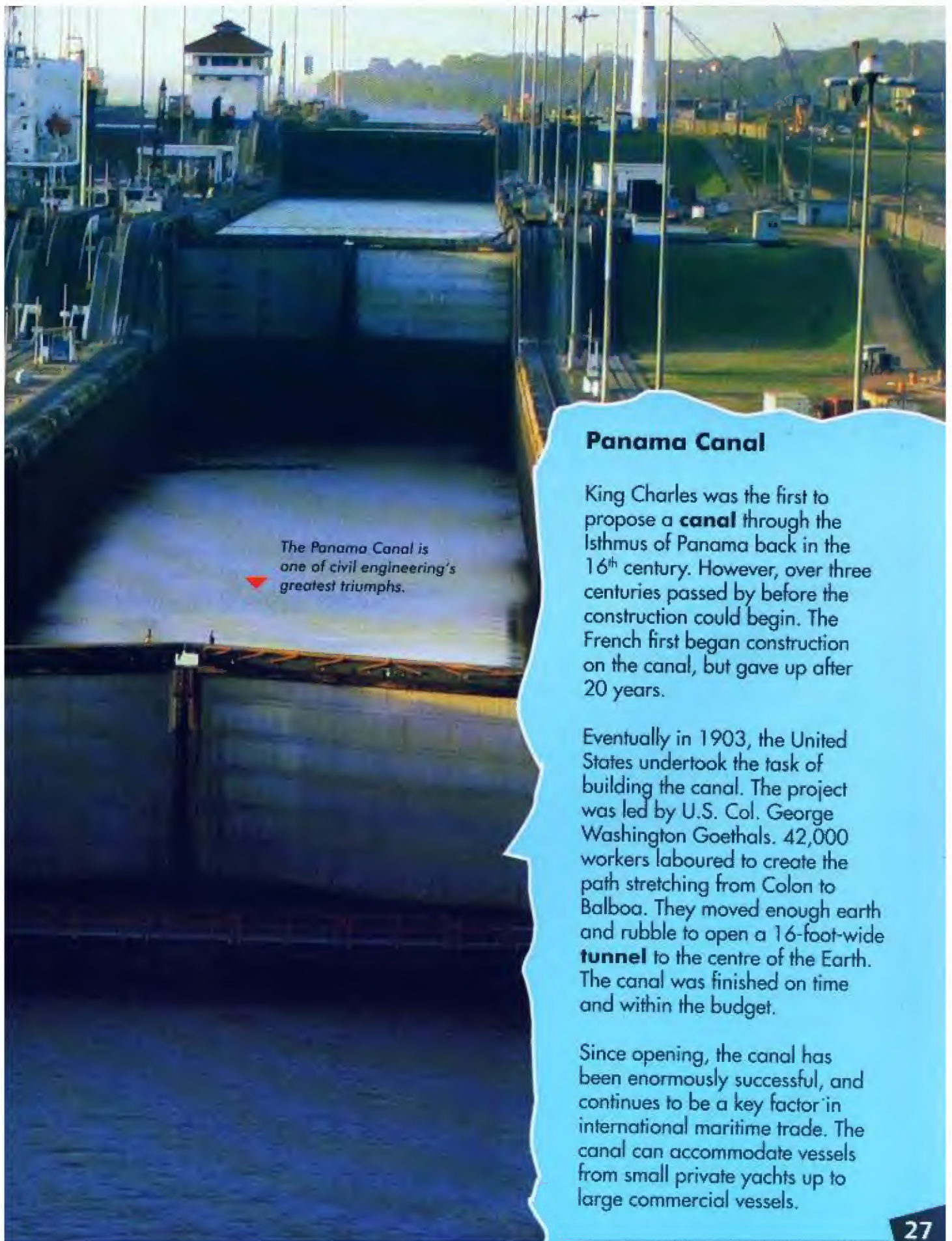
Netherlands North Sea Protection Works

The North Sea Protection Works is a unique system of dams, floodgates, **storm surge** barriers and other engineering works. The country of Netherlands sits below the sea level and its land mass is still sinking. For centuries, the people of the Netherlands have repeatedly attempted to push back the sea. The Protection Works is a result of those efforts.

It consists of two monumental steps that the Dutch took to win their struggle to hold back the sea. The first step was the construction of a 30 kilometre-long enclosure dam. This monstrous dike held back the water at the neck of the estuary once known as Zuiderzee. The Delta project was the second step. It controlled the treacherous area where the Meuse and Rhine Rivers break into a delta.

The Eastern Schelde Barrier gave the final touch. This was a 3-kilometres barrier of tall gates slung between massive concrete piers, which fall only when storm-waters threaten. The North Sea Protection Works exemplifies the ability of humanity to exist side-by-side with the forces of nature.

Also known as "Zuiderzee Works" it is a series of man-made dams for land reclamation and water drainage works. It is the largest hydraulic engineering project undertaken by the Netherlands during the 20th century.



▼ The Panama Canal is one of civil engineering's greatest triumphs.

Panama Canal

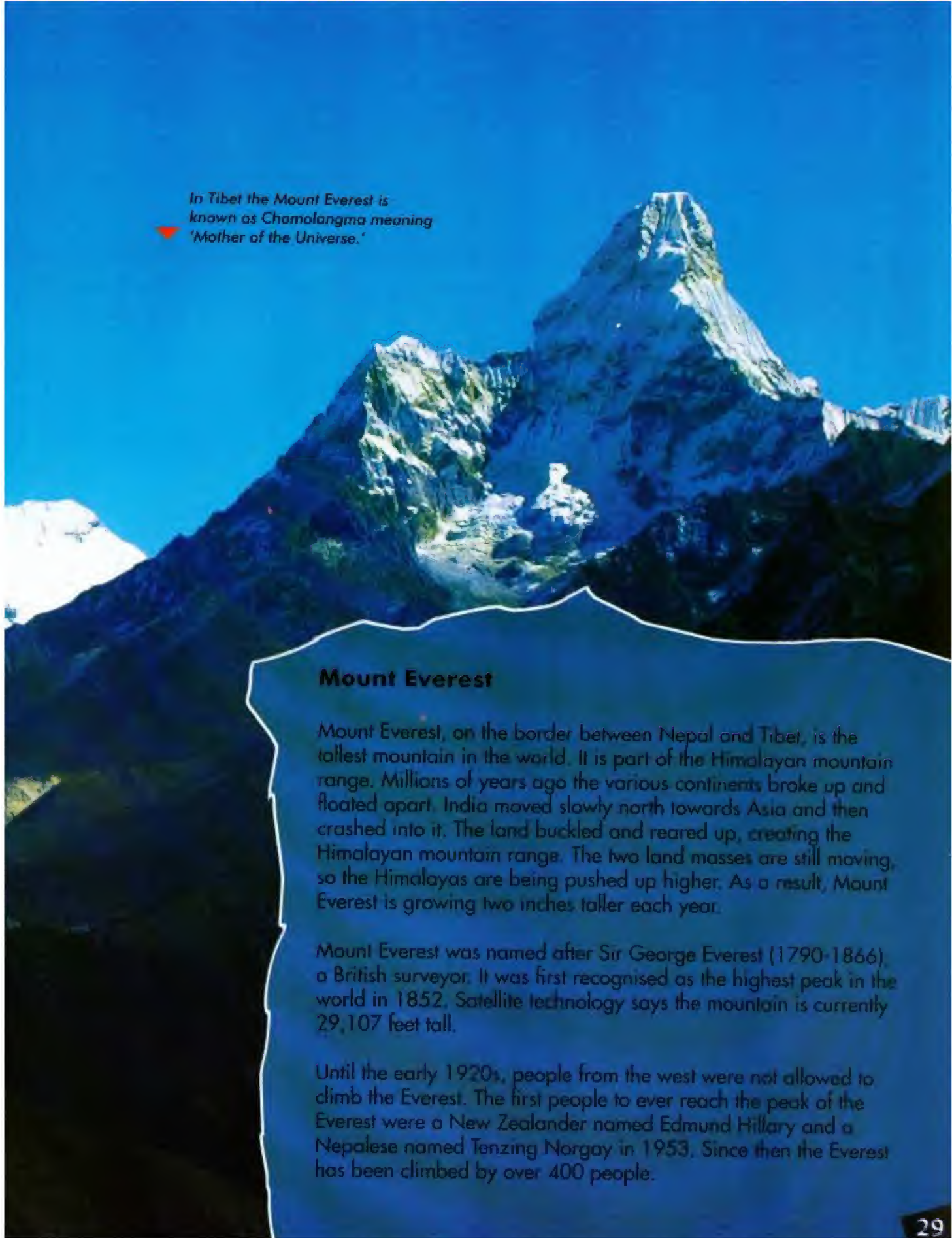
King Charles was the first to propose a **canal** through the Isthmus of Panama back in the 16th century. However, over three centuries passed by before the construction could begin. The French first began construction on the canal, but gave up after 20 years.

Eventually in 1903, the United States undertook the task of building the canal. The project was led by U.S. Col. George Washington Goethals. 42,000 workers laboured to create the path stretching from Colon to Balboa. They moved enough earth and rubble to open a 16-foot-wide **tunnel** to the centre of the Earth. The canal was finished on time and within the budget.

Since opening, the canal has been enormously successful, and continues to be a key factor in international maritime trade. The canal can accommodate vessels from small private yachts up to large commercial vessels.

SEVEN NATURAL WONDERS

Even though the man-made wonders of the world are mind-boggling, nothing can beat the power that the nature wields. The forces of nature worked for millions of years, working at the earth to create some of the most amazing sights. Canyons, lightstorms, waterfalls– they are all part of the list of some of the most awesome spectacles of nature.



In Tibet the Mount Everest is known as Chamolangma meaning 'Mother of the Universe.'

Mount Everest

Mount Everest, on the border between Nepal and Tibet, is the tallest mountain in the world. It is part of the Himalayan mountain range. Millions of years ago the various continents broke up and floated apart. India moved slowly north towards Asia and then crashed into it. The land buckled and reared up, creating the Himalayan mountain range. The two land masses are still moving, so the Himalayas are being pushed up higher. As a result, Mount Everest is growing two inches taller each year.

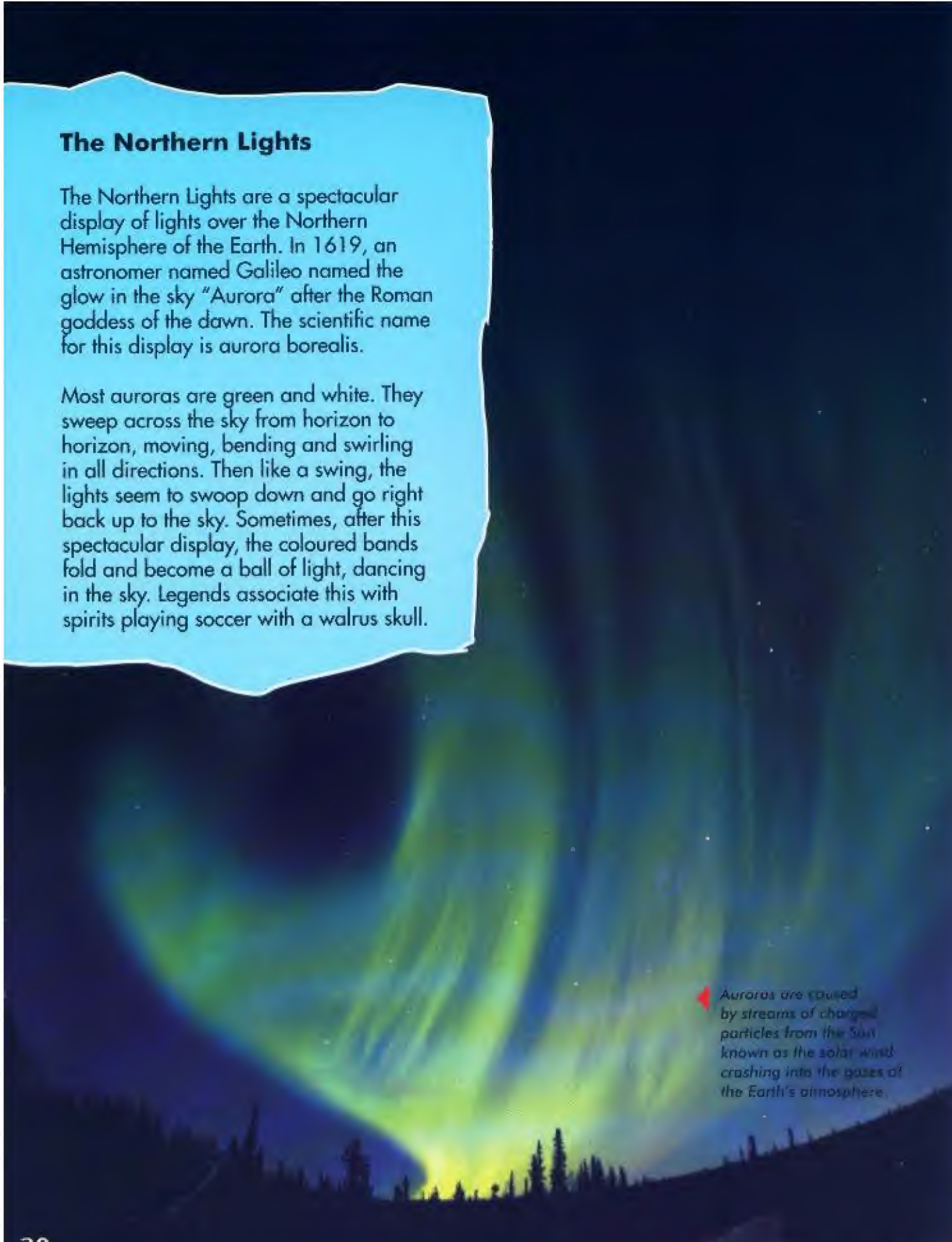
Mount Everest was named after Sir George Everest (1790-1866), a British surveyor. It was first recognised as the highest peak in the world in 1852. Satellite technology says the mountain is currently 29,107 feet tall.

Until the early 1920s, people from the west were not allowed to climb the Everest. The first people to ever reach the peak of the Everest were a New Zealander named Edmund Hillary and a Nepalese named Tenzing Norgay in 1953. Since then the Everest has been climbed by over 400 people.

The Northern Lights

The Northern Lights are a spectacular display of lights over the Northern Hemisphere of the Earth. In 1619, an astronomer named Galileo named the glow in the sky "Aurora" after the Roman goddess of the dawn. The scientific name for this display is *aurora borealis*.

Most auroras are green and white. They sweep across the sky from horizon to horizon, moving, bending and swirling in all directions. Then like a swing, the lights seem to swoop down and go right back up to the sky. Sometimes, after this spectacular display, the coloured bands fold and become a ball of light, dancing in the sky. Legends associate this with spirits playing soccer with a walrus skull.



Auroras are caused by streams of charged particles from the Sun known as the solar wind crashing into the gases of the Earth's atmosphere.

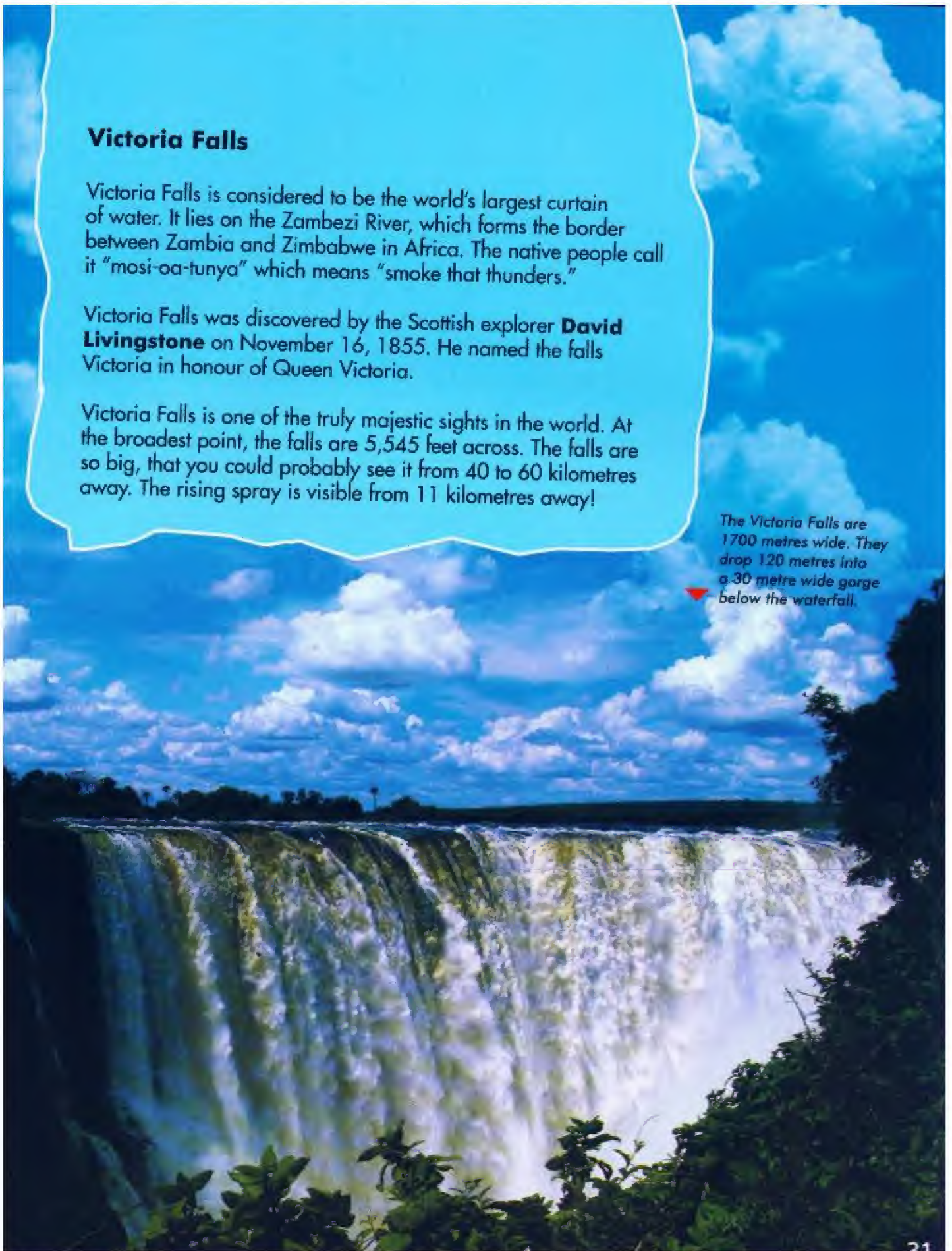
Victoria Falls

Victoria Falls is considered to be the world's largest curtain of water. It lies on the Zambezi River, which forms the border between Zambia and Zimbabwe in Africa. The native people call it "mosi-oa-tunya" which means "smoke that thunders."

Victoria Falls was discovered by the Scottish explorer **David Livingstone** on November 16, 1855. He named the falls Victoria in honour of Queen Victoria.

Victoria Falls is one of the truly majestic sights in the world. At the broadest point, the falls are 5,545 feet across. The falls are so big, that you could probably see it from 40 to 60 kilometres away. The rising spray is visible from 11 kilometres away!

The Victoria Falls are 1700 metres wide. They drop 120 metres into a 30 metre wide gorge below the waterfall.



The Grand Canyon

In September 1540, the Spanish explorer Captain Garcia Lopez de Cardenas arrived in Arizona, USA to look for the fabled treasure of the Seven cities of Cibola. He didn't find the treasure, but did discover one of the seven natural wonders of the world: the Grand Canyon.

A canyon is a deep valley with steep cliffs on both sides. It is formed when a river cuts through the land over centuries. The Grand Canyon was formed by the Colorado River. Scientists say that it took the river six million years to carve the valley.

Today, one of the major attractions here is a skywalk that is situated 4,000 feet above the floor of the canyon and allows a spectacular view of the floor of the Grand Canyon.

The Grand Canyon is located in Arizona and stretches to Colorado. It is a national park which has become a national landmark that lures people from all over the world.





Harbour at Rio de Janeiro

On the east coast of Brazil, the city of Rio de Janeiro hugs the steep hillsides that meet the magnificent Guanabara Bay and the Atlantic Ocean. Portuguese explorers first discovered this sheltered bay in 1502.

Thinking they had reached the mouth of some immense river, the navigators called the bay "Rio de Janeiro" – River of January – in honour of the month they arrived. The locals called this bay Guanabara, meaning arm of the sea. The bay is about 31 kilometres long and at its widest point measures 28 kilometres. The entrance to the bay is 1.6 kilometres wide.

Numerous islands dot Guanabara Bay, most of them with fortifications, naval storehouses and dry docks. The size of the bay and the massive mountains standing make for a very impressive sight. No wonder it is considered as one of the natural wonders of the world.

▲ The Harbour of Rio de Janeiro was created by erosion from the Atlantic Ocean.




Paricutin


On February 20, 1943, Dionisio Pulido, a farmer from Michoacan in Mexico felt the earth tremble under his feet. He watched in horror as a 150-foot long crack opened up in the earth and started to emit smoke. Within 24 hours there was a 164-foot high hill throwing up fiery rocks. It was the birth of the volcano known as Paricutin.

Within a year, the volcano's cinder cone reached 1,100 feet. Within two years, its slow-moving lava flows buried most of the town of Paricutin and partially buried its neighbour, San Juan Parangaricutiro.

By the time the eruption ended in a blaze of violent activity in 1952, Paricutin's cinder cone added another 290 feet.

Miraculously, no one died from the lava and the ash, although three people did die from lightning associated with the eruption.

 The cycle of birth and death of Paricutin lasted a total of nine years, between 1943 and 1952.

A photograph of a traditional wooden sailboat with a single mast and a large sail, floating on a wide river. The boat is positioned in the lower center of the frame. In the background, there are rolling hills under a clear blue sky. The river's surface is dark and calm. The foreground shows a rocky, light-colored bank on the left side.

The River Nile is formed from the White Nile, which originates at Lake Victoria and the Blue Nile, which originates at Lake Tana in Ethiopia. These rivers meet in Sudan and then go on their long journey northwards towards the sea.

The Nile

The river Nile gave birth to one of the world's greatest civilisations, Egypt. No wonder then, that Egypt is known as the 'Gift of the Nile.' The Nile is a major north-flowing river in Africa and is generally regarded as the longest river in the world.

In ancient times, the river used to flood every year, depositing fertile black soil on its banks. This soil was excellent for farming and soon people settled on the riverbanks. Even today, a majority of the Egyptian population lives on the banks of the river. The northern section of the river flows almost entirely through desert, from Sudan into Egypt.

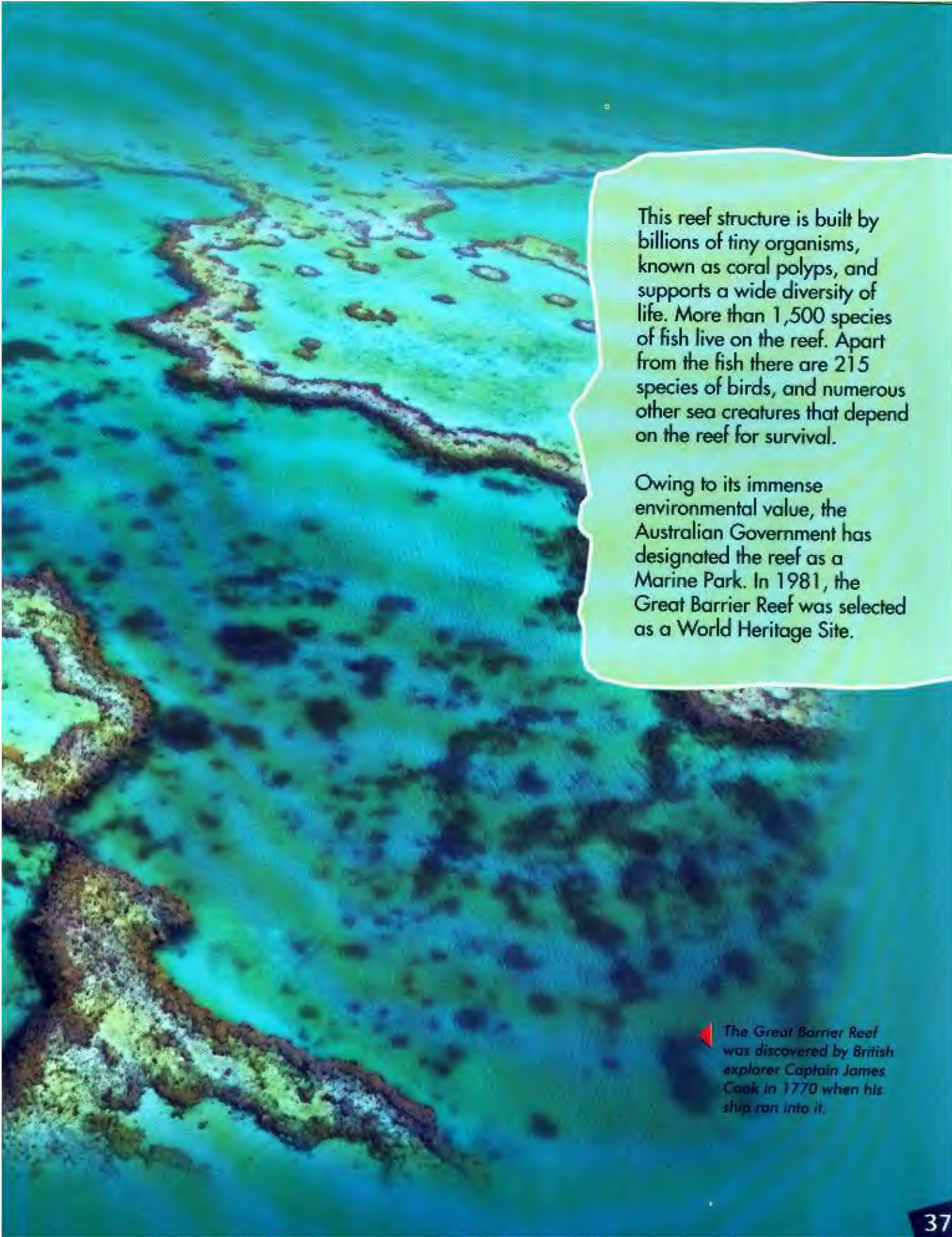
An aerial photograph of a coral reef system, likely the Great Barrier Reef, showing intricate patterns of coral and sand in clear, turquoise water. The reef stretches across the frame, with various shades of blue and green indicating different depths and types of coral.

SEVEN UNDERWATER WONDERS

The miracles of nature are not only visible on land but also in the watery depths of the seas and oceans. The Seven Underwater Wonders of the World was a list drawn up by CEDAM International, an American non-profit group for divers, dedicated to ocean preservation and research. These wonders are either bodies of water, occur underwater, or are surrounded by water.


The Great Barrier Reef

The Great **Barrier Reef** is the largest coral reef system in the world. It is the world's biggest single structure made by living organisms and can be seen even from outer space. Composed of over 2,900 individual reefs and 900 islands, the reef stretches for 2,600 kilometres and is spread over an area of approximately 344,400 square kilometres. The reef is located in the Coral Sea, off the coast of Queensland in northeast Australia.



This reef structure is built by billions of tiny organisms, known as coral polyps, and supports a wide diversity of life. More than 1,500 species of fish live on the reef. Apart from the fish there are 215 species of birds, and numerous other sea creatures that depend on the reef for survival.

Owing to its immense environmental value, the Australian Government has designated the reef as a Marine Park. In 1981, the Great Barrier Reef was selected as a World Heritage Site.


 The Great Barrier Reef was discovered by British explorer Captain James Cook in 1770 when his ship ran into it.



The Belize Barrier Reef

Charles Darwin described the Belize Barrier Reef as "the most remarkable reef in the West Indies" in 1842. At 300 kilometres, the Belize Barrier Reef is the second largest barrier reef in the world, after the Great Barrier Reef in Australia. It rises from the seafloor off the coast of Belize in South America. A diver's paradise, it is known for fascinating coral formations, myriad fish and invertebrates, and exceptional water clarity.

On the ocean side of this 257-kilometres-long reef is a popular tourist destination known as Lighthouse Reef. Here, crystal-clear waters fill the famous Blue Hole, a crater more than 1,000 feet across and just over 400 feet deep. The crater is filled with stalactites formed during the Ice Age.



As one of the most diverse
eco systems, it is home to
over 100 coral species, 500
species of fish and hundreds
of invertebrate species.

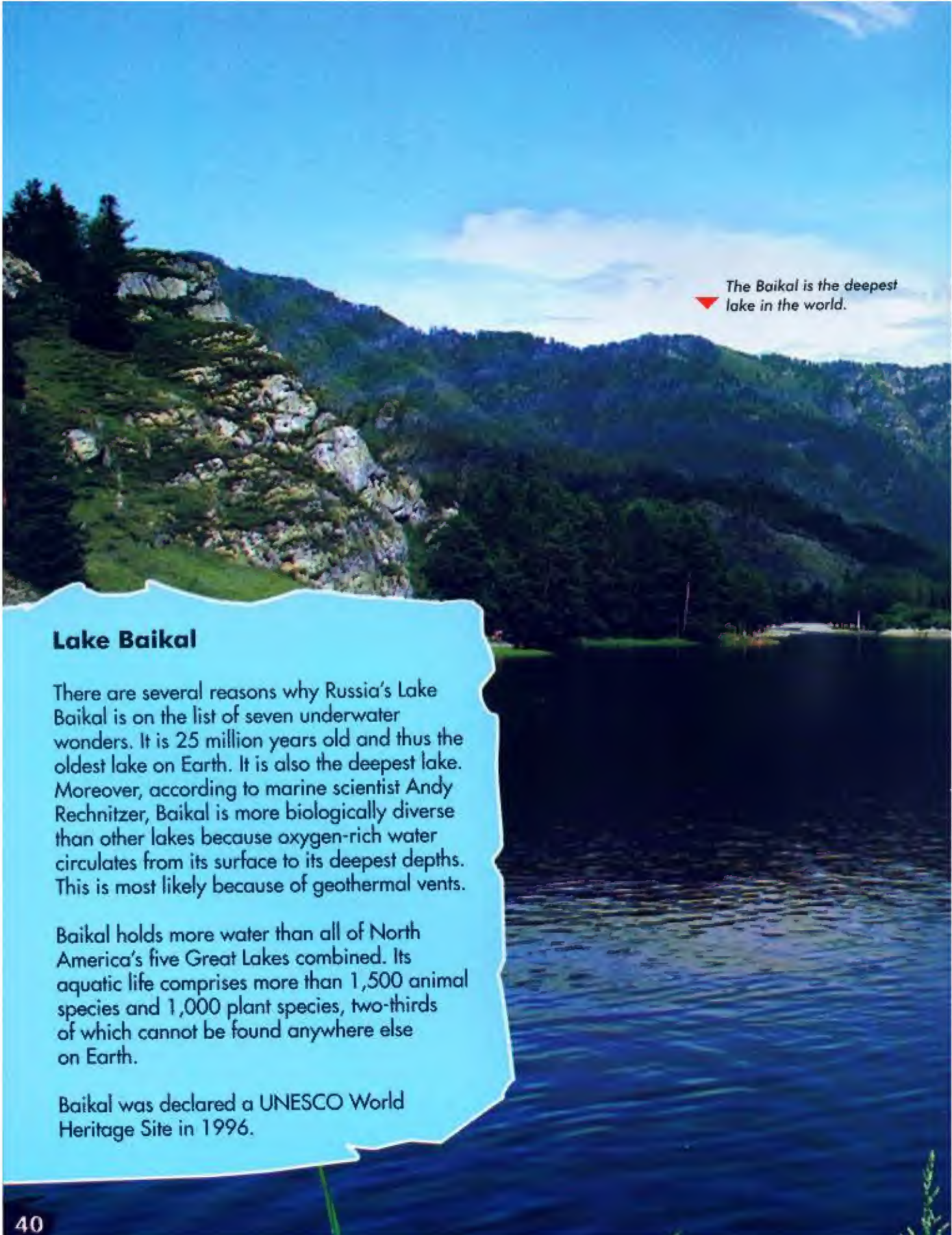


Hydrothermal vent

A hydrothermal vent is a volcano that erupts on the ocean floor. Hydrothermal vents are commonly found near volcanically active places, areas where tectonic plates are moving apart, ocean basins, and hotspots. They are often characterised by plumes of smokes that rise up from the volcanoes, earning them the name of 'Black Smokers.' The first hydrothermal vent was discovered in 1977, when marine scientists Richard Lutz and Peter Rona set off in the deep sea submersible.

The residents of the vent community are the most fascinating creatures because they live in a world without sunlight.

Several of these vents have been found and explored in both the Pacific and the Atlantic ocean.



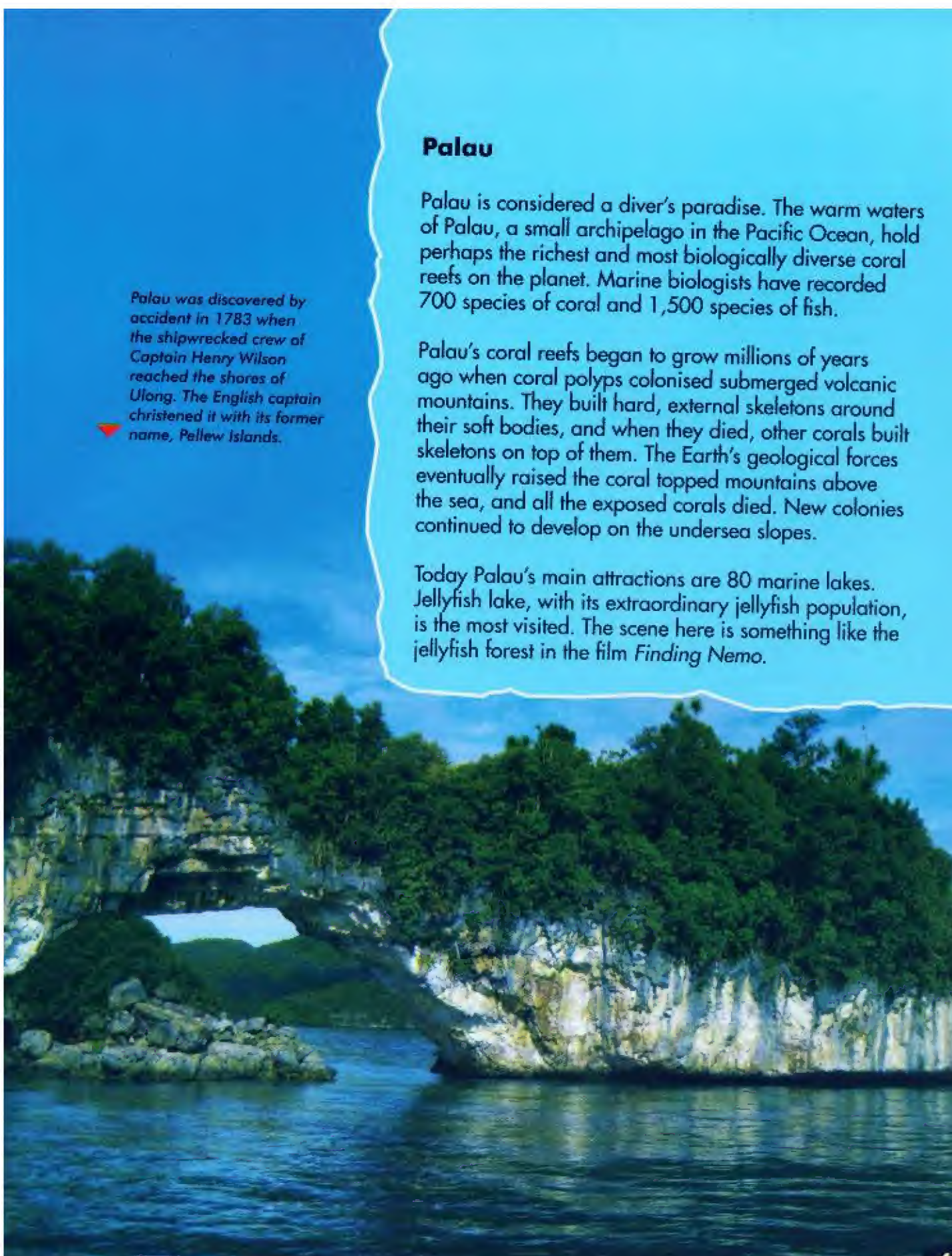
▼ The Baikal is the deepest lake in the world.

Lake Baikal

There are several reasons why Russia's Lake Baikal is on the list of seven underwater wonders. It is 25 million years old and thus the oldest lake on Earth. It is also the deepest lake. Moreover, according to marine scientist Andy Rechnitzer, Baikal is more biologically diverse than other lakes because oxygen-rich water circulates from its surface to its deepest depths. This is most likely because of geothermal vents.

Baikal holds more water than all of North America's five Great Lakes combined. Its aquatic life comprises more than 1,500 animal species and 1,000 plant species, two-thirds of which cannot be found anywhere else on Earth.

Baikal was declared a UNESCO World Heritage Site in 1996.



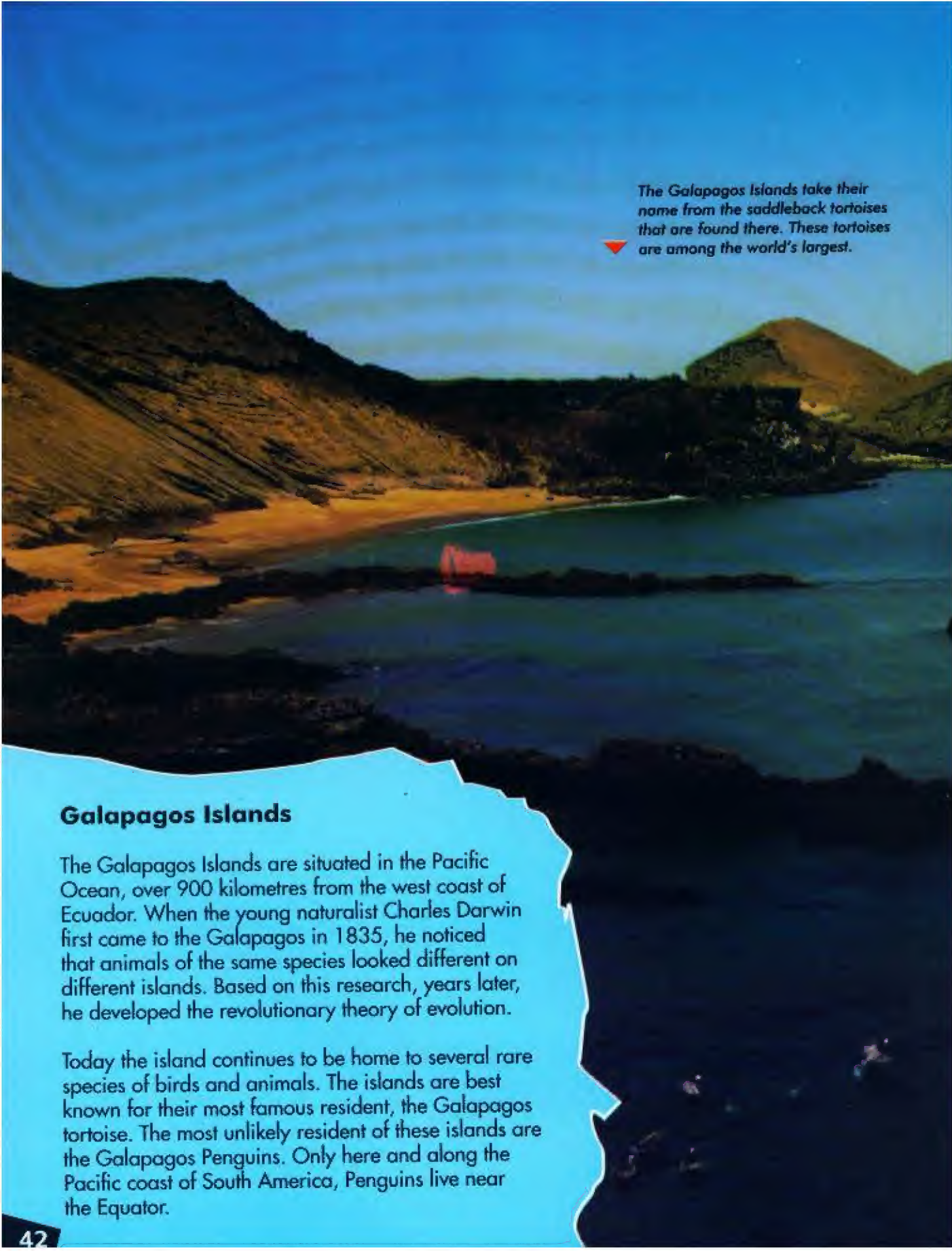
Palau was discovered by accident in 1783 when the shipwrecked crew of Captain Henry Wilson reached the shores of Ulong. The English captain christened it with its former name, Pellew Islands.

Palau

Palau is considered a diver's paradise. The warm waters of Palau, a small archipelago in the Pacific Ocean, hold perhaps the richest and most biologically diverse coral reefs on the planet. Marine biologists have recorded 700 species of coral and 1,500 species of fish.

Palau's coral reefs began to grow millions of years ago when coral polyps colonised submerged volcanic mountains. They built hard, external skeletons around their soft bodies, and when they died, other corals built skeletons on top of them. The Earth's geological forces eventually raised the coral topped mountains above the sea, and all the exposed corals died. New colonies continued to develop on the undersea slopes.

Today Palau's main attractions are 80 marine lakes. Jellyfish lake, with its extraordinary jellyfish population, is the most visited. The scene here is something like the jellyfish forest in the film *Finding Nemo*.

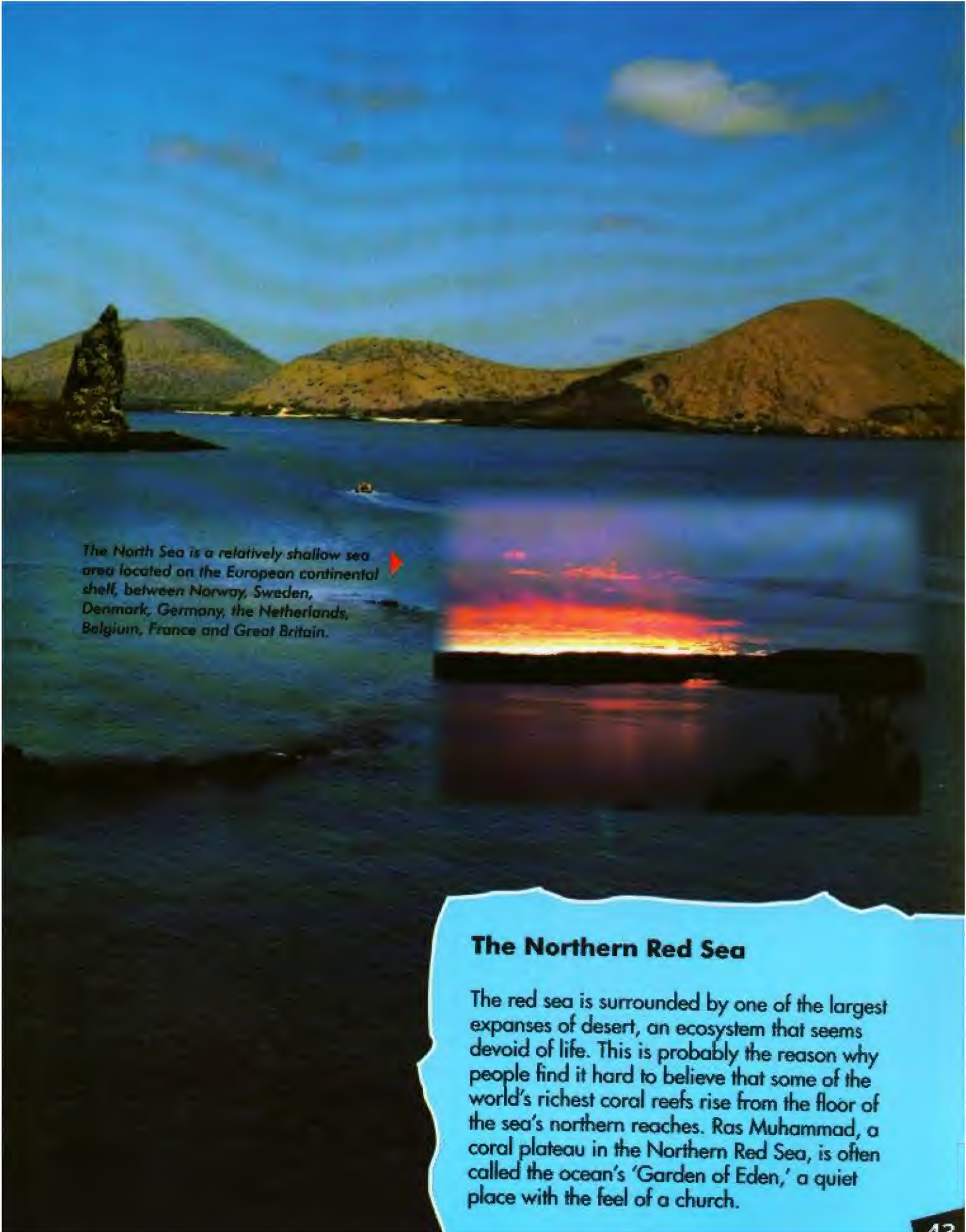


The Galapagos Islands take their name from the saddleback tortoises that are found there. These tortoises are among the world's largest.

Galapagos Islands

The Galapagos Islands are situated in the Pacific Ocean, over 900 kilometres from the west coast of Ecuador. When the young naturalist Charles Darwin first came to the Galapagos in 1835, he noticed that animals of the same species looked different on different islands. Based on this research, years later, he developed the revolutionary theory of evolution.

Today the island continues to be home to several rare species of birds and animals. The islands are best known for their most famous resident, the Galapagos tortoise. The most unlikely resident of these islands are the Galapagos Penguins. Only here and along the Pacific coast of South America, Penguins live near the Equator.



The North Sea is a relatively shallow sea area located on the European continental shelf, between Norway, Sweden, Denmark, Germany, the Netherlands, Belgium, France and Great Britain.

The Northern Red Sea

The red sea is surrounded by one of the largest expanses of desert, an ecosystem that seems devoid of life. This is probably the reason why people find it hard to believe that some of the world's richest coral reefs rise from the floor of the sea's northern reaches. Ras Muhammad, a coral plateau in the Northern Red Sea, is often called the ocean's 'Garden of Eden,' a quiet place with the feel of a church.

Facts At A Glance

- There are over 2,300,000 precisely cut blocks of stone in the Great Pyramid.
- The Roman emperor, Caligula, grew so jealous of the power of the statue of Zeus that he ordered to move it to Rome. According to legend, when the workers tried to move the statue, the scaffolding collapsed with a loud laughing noise.
- The design for the Statue of Liberty in New York was inspired by the Colossus of Rhodes.
- Even though it was designed as a church, the Hagia Sofia served as Istanbul's main mosque for over 500 years.
- The Channel Tunnel has over 482 kilometres of cold water piping running along the tracks to drain off the heat generated by friction.
- Since its construction over 66 years ago, the Golden Gate Bridge has only been shut three times to traffic and the longest time it was shut was 3 hours and 27 minutes. The bridge has approximately 1,200,000 rivets.
- The Itaipu Dam generates enough electricity to provide 72 percent of Paraguay's energy needs.
- When work began on the Panama canal, workers moved enough earth and rubble to bury the island of Manhattan to a depth of 12-feet, or enough to open a 16-foot-wide tunnel to the centre of the Earth.
- Work on the Panama Canal was first begun in 1880 by the French but the project was abandoned after over 21,900 workers died.
- Earth is not the only planet with auroras. Saturn, Jupiter, and Uranus also have colourful auroras.
- The Great Barrier Reef is the world's biggest single structure made by living organisms. It is so big that it can be seen from outer space.



Glossary

Alexander the Great: great Greek king

Barrier reef: long coral reef parallel and close to the shore

canal: narrow and long strip of water used for irrigation purposes or by boats

canyon: ravine formed by a river in a region with little rainfall

dam: barrier constructed to hold water

David Livingstone: great Scottish explorer

gladiator: Roman prisoners of ancient times who used to engage in mortal combat in order to entertain the public

Merlin: legendary sorcerer

pyramid: massive triangular monument used by ancient Egyptians as tombs for their emperors

storm surge: unusual rise in sea levels due to high winds

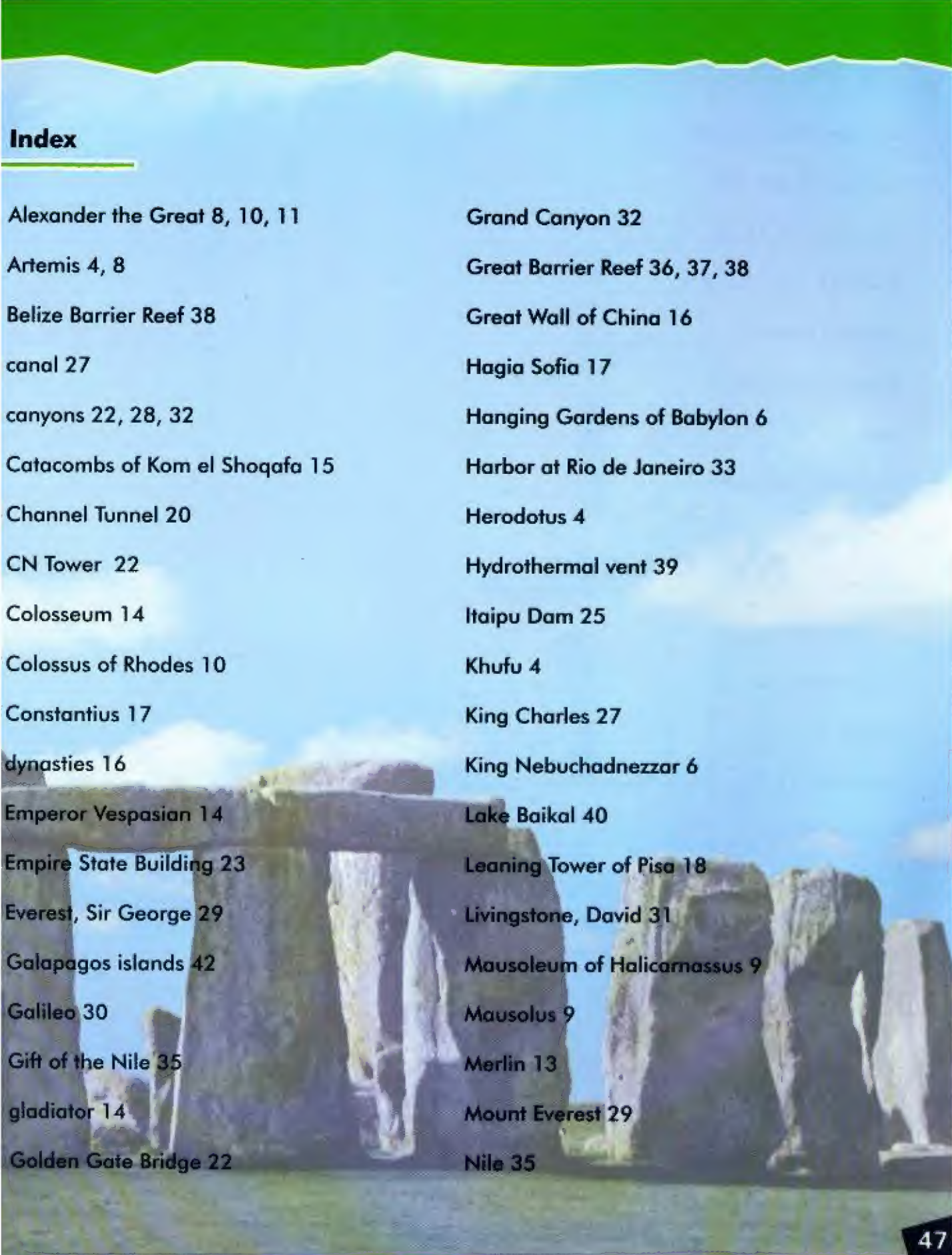
tower: very tall structure

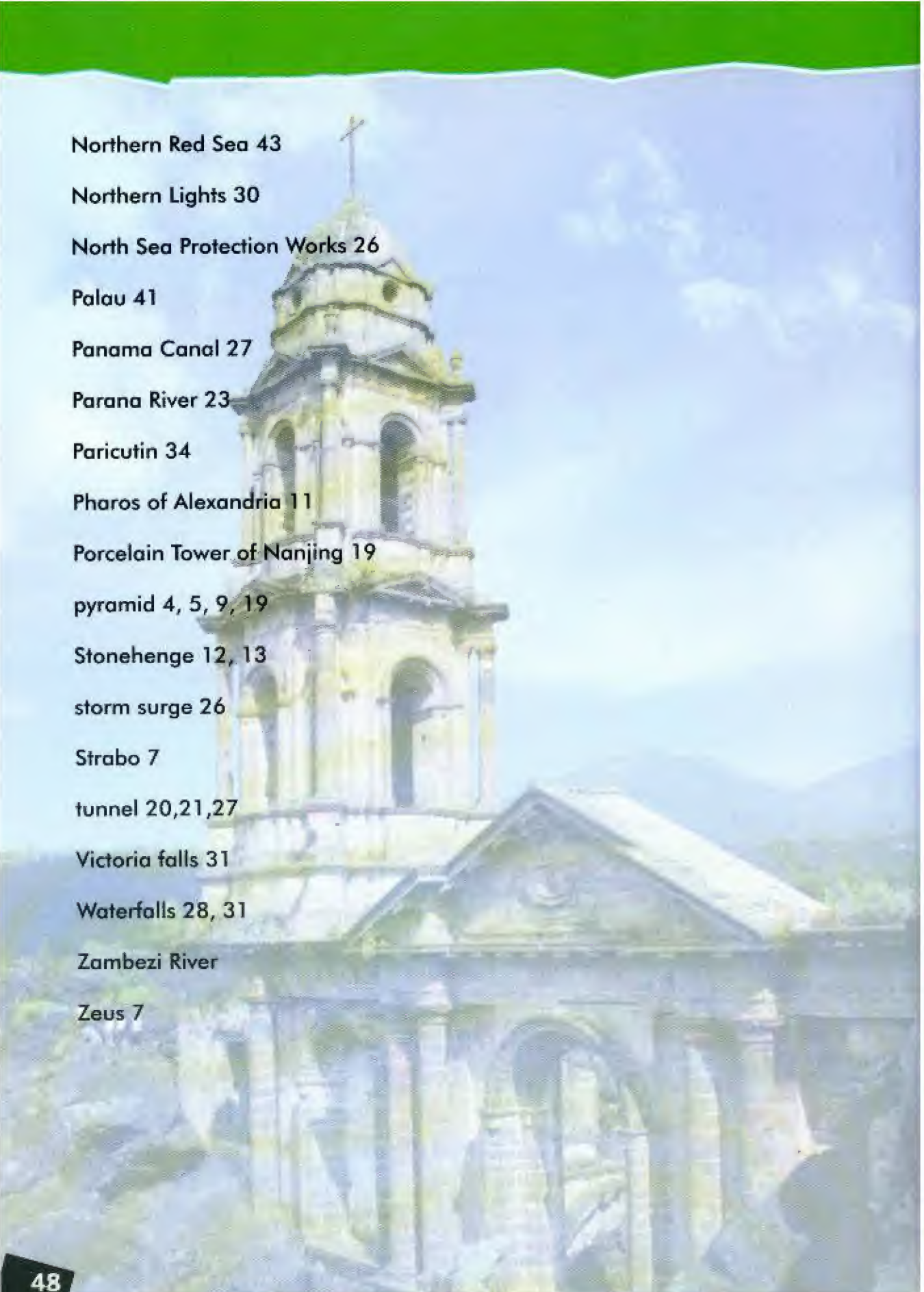
tunnel: passage, usually underground

waterfall: steep descent of river water



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SEVEN WONDERS OF THE WORLD

There are man-made and natural structures in this world that stand out from the rest. This book covers seven different categories of such structures (seven in each category). The informative pictures complement the simple yet interesting text.



ISBN 978-81-7991-508-0



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